

Claims

What is claimed is:

1. A method for separately determining request time
and response time of packet traversal in a computer network
5 between a first and a second computer system comprising:

determining the clock difference V between
the first computer system and the second computer
system using a statistical method; and

10 calculating either the request traversal time
Dq or the response traversal time Dp using said
clock difference V.

2. The method according to claim 1 comprising:

calculating the request traversal time D_q by adding the clock difference V to the arrival time U_2 at the second computer side in units of its clock and subtracting the transmitting time T_1 at the first computer side, as is $D_q = U_2 + V - T_1$; and

calculating the response traversal time D_p by subtracting D_q from D , where D is the time difference in first computer clock units between sending the request and receiving the response minus the second computer request processing time D_s , as is $D_p = T_4 - T_1 - D_s - D_q$.

3. The method according to claim 1 in which the

determining the clock difference V comprises a repetition of the following:

predicting the point in time when a request will arrive on the second computer in units of the first computer clock; and

comparing said predicted point in time with the point in time the arrival actually happens in units of the second computer clock.

4. The method according to claim 3 used for improving network performance by re-directing packets to a different routing path when a path was detected to be of low performance.

5 5. The method according to claim 1 in which the first computer system is a client and the second computer system is a server computer system.

10 6. The method according to claim 1 in which the first computer system is a server and the second computer system is a client computer system.

7. The method according to claim 1 in which the first computer system is a client and the second computer system is a router computer system.

15 8. The method according to claim 1 in which the first computer system is a router and the second computer system is a router computer system.

9. A system for separately determining request time and response time of packet traversal in a computer network between a first and a second computer system comprising:

means for determining the clock difference V
5 between the first computer system and the second computer system using a statistical method; and

means for calculating either the request traversal time Dq or the response traversal time Dp using said clock difference V.

10 10. The system according to claim 9 comprising:

means for calculating the request traversal time Dq by adding the clock difference V to the arrival time U2 at the second computer side in units of its clock and subtracting the transmitting time T1 at the first computer side,
15 as is $Dq = U2 + V - T1$; and

means for calculating the response traversal time Dp by subtracting Dq from D, where D is the time difference in first computer clock units between sending the request and receiving the response minus the second computer request processing time Ds, as is $Dp = T4 - T1 - Ds - Dq$.

11. The system according to claim 9 in which the means for determining the clock difference V comprises a repetition of the following:

5 predicting the point in time when a request will arrive on the second computer in units of the first computer clock; and

10 comparing said predicted point in time with the point in time the arrival actually happens in units of the second computer clock.

15 12. The system according to claim 11 used for improving network performance by re-directing packets to a different routing path when a path was detected to be of low performance.

20 13. The system according to claim 9 in which the first computer system is a client and the second computer system is a server computer system.

14. The system according to claim 9 in which the first computer system is a server and the second computer system is a client computer system.

15. The system according to claim 9 in which the first computer system is a client and the second computer system is a router computer system.

16. The system according to claim 9 in which the first computer system is a router and the second computer system is a router computer system.

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17. A computer program comprising code portions
adapted for performing a method for separately determining
request time and response time of packet traversal in a
computer network between a first and a second computer
5 system, said method comprising:

determining the clock difference V between
the first computer system and the second computer
system using a statistical method; and

10 calculating either the request traversal time
Dq or the response traversal time Dp using said
clock difference V.

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18. At least one program storage device readable by a
machine, tangibly embodying at least one program of
instructions executable by the machine to perform a method
for separately determining request time and response time of
5 packet traversal in a computer network between a first and a
second computer system, said method comprising:

determining the clock difference V between
the first computer system and the second computer
system using a statistical method; and

10 calculating either the request traversal time
 D_q or the response traversal time D_p using said
clock difference V .

19. The at least one program storage device of claim
18, wherein said method further comprises:

5 calculating the request traversal time Dq by
 adding the clock difference V to the arrival time
 U2 at the second computer side in units of its
 clock and subtracting the transmitting time T1 at
 the first computer side, as is $Dq = U2 + V - T1$;
 and

10 calculating the response traversal time Dp by
 subtracting Dq from D, where D is the time
 difference in first computer clock units between
 sending the request and receiving the response
 minus the second computer request processing time
 Ds, as is $Dp = T4 - T1 - Ds - Dq$.

15 20. The at least one program storage device of claim
 18 in which the determining the clock difference V comprises
 a repetition of the following:

20 predicting the point in time when a request
 will arrive on the second computer in units of the
 first computer clock; and

 comparing said predicted point in time with
 the point in time the arrival actually happens in
 units of the second computer clock.

21. The at least one program storage device of claim
20 used for improving network performance by re-directing
packets to a different routing path when a path was detected
to be of low performance.

5 22. The at least one program storage device of claim
18 in which the first computer system is a client and the
second computer system is a server computer system.

10 23. The at least one program storage device of claim
18 in which the first computer system is a server and the
second computer system is a client computer system.

15 24. The at least one program storage device of claim
18 in which the first computer system is a client and the
second computer system is a router computer system.

20 25. The at least one program storage device of claim
18 in which the first computer system is a router and the
second computer system is a router computer system.

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